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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/482,354	01/14/2000	Hidehiro Iizuke	381NP/48511	6862

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EXAMINER

VANOY, TIMOTHY C

ART UNIT	PAPER NUMBER
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1754

11

DATE MAILED: 07/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/482,354

Applicant(s)

IIZUKA et al.

Examiner

VANOV

Group Art Unit

1754

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to THE AMENDMENTS DATE-STAMPED MAY 23, 2003 AND FAXED ON JUNE 26, 03. communication(s) filed on

☒ This action is FINAL.

- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-5 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-5 is/are rejected.

☒ Claim(s) 1, 2 AND 5 is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

DETAILED ACTION

Claim Objections

- a) In claim 1 line 2, "of" should be replaced with "emitted from an".
- b) In claim 1 line 21, "200°C" should be replaced with "220 °C".
- c) Claim 2 should be canceled because the limitations contained therein are already recited in applicants' claim 1.
- d) In claim 5 line 3, the phrase "is placed" should be deleted.
- e) In claim 5 line 7, "that" should be replaced with "than".
- f) In claim 5 line 18, "wherein the" should be inserted before "ratios".

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3 and 5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The amendments to the claims presented in the amendment dated May 23, 2003 (paper no. 9) have introduced the following new issues:

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- a) The applicants have not pointed out where the specification, as originally filed, provides support for the limitation in applicants' claims 1, 3 and 5 that the alkaline and alkaline earth metals may be in any form of carbonate; oxide or complex oxide;
- b) The applicants have not pointed out where the specification, as originally filed, provides support for the limitation in applicants' claim 1 that the Rh and Pt are in the form of a metal or a metal oxide;
- c) The applicants have not pointed out where the specification, as originally filed, provides support for the limitation in applicants' claim 1 that the Pd, Ir and Ru is in the form of a metal or a metal oxide;
- d) The applicants have not pointed out where the specification, as originally filed, provides support for the limitation in applicants' claim 3 that the Ti, Si and Zr may be in any form of carbonate, oxide or complex oxide;
- e) The applicants have not pointed out where the specification, as originally filed, provides support for the limitation in applicants' 5 that 5 to 50 parts by weight of alkaline metal or alkaline earth metal are supported on the carrier.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having "ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/47864.

"Test Manner 1" and Table 7 set forth on pg. 59 et seq. and claim 1 in WO 97/47864 describes at least an obvious variation of the same method for purifying the exhaust gas emitted from an internal combustion: comprising:

passing the exhaust gas, contaminated with NO_x and CO, through a catalyst under stoichiometric air/fuel conditions so that NO_x is sorbed into the catalyst and then passing the exhaust gas through the catalyst under fuel rich-air lean conditions so that the sorbed NO_x is reduced by the reducing agent.

The difference between the Applicants' claims and WO 97/47864 is that the Applicants' claims call for passing the exhaust gas through the catalyst under fuel lean-air rich conditions (whereas "Test Manner 1" in WO 97/47864 sets forth that the exhaust gas was passed through the catalyst under stoichiometric conditions).

The paragraph bridging pgs. 35 and 36 in WO 97/47864 fairly suggests that such fuel lean-air rich conditions were contemplated as a viable and obvious alternative to operation under stoichiometric air/fuel conditions.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process described in WO 97/47864 by substituting the fuel lean-air rich conditions mentioned in the paragraph bridging pgs. 35 and 36 in WO 97/47864 in lieu of the stoichiometric air/fuel conditions mentioned in "Test Manner 1" set forth on pg. 59 et seq. in WO 97/47864, in the manner required by the Applicants' claims, because the paragraph bridging pgs. 35 and 36 in WO 97/47864 fairly suggests that this substitution was contemplated by the Authors of WO 97/47864.

The catalysts set forth on Table 7 on pg. 59 in WO 97/47864 contain:

- cerium in amounts ranging from 5 to 40 weight percent;
- strontium in amounts ranging from 3 to 40 weight percent;
- titanium in amounts ranging from 0.1 to 30 weight percent;

- platinum in amounts ranging from 0.2 to 4 weight percent;
- rhodium in amounts ranging from 0.15 to 1 weight percent, and
- magnesium (1 weight percent).

The difference between the Applicants' claims and the catalysts of Table 7 on pg. 59 in WO 97/47864 is that the Applicants' claim 1 calls for the presence of a CO-sorbent component (which claim 2 identifies as palladium). Additionally, Applicants' claim 5 sets forth that the catalyst may also contain palladium.

Claim 9 in WO 97/47864 sets forth that the catalyst also contains at least one of platinum, palladium and rhodium.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the catalyst and process described in "Test Manner 1" and Table 7 on pg. 59 et seq. in WO 97/47864 by including the palladium of claim 9 in WO 97/47864, in the manner required by Applicants' claims 1, 2 and 5, because the Authors of WO 97/47864 contemplated this embodiment by the scope of their language in their claim 9 "*at least one of. . .*", consistent with the discussion of the *In re Petering* 301, F.2d 676, 681, 133 USPQ 275, 280 (CCPA 1962) court decision set forth in section 2144.08(II)(A)(4)(a) in the MPEP (8th ed.) where it was established that the selection of a specie out of a genus of 20 species disclosed in a prior art reference was anticipated by that prior art reference.

Further, note that claim 7 in WO 97/47864 sets forth that the catalyst may also contain at least one of titanium and silicon, as set forth in at least Applicants' claims 3 and 5. Also, note that the description of the catalysts set forth on pg. 19 Ins. 3-8 and pg.

26 et seq. in WO 97/47864 seems to suggest that the titanium and silicon are also forming complex oxides with the sodium, magnesium, etc. as set forth in Applicants' claim 3.

The difference between the Applicants' claims and WO 97/47864 is that Applicants' claims 1 and 5 describe the physical characteristics of the CO adsorbent component as having a defined enthalpy on the surface of a metal crystal and certain adsorption and desorption characteristics defined as a function of helium gas flow rate and temperature.

Applicants' claim 2 sets forth that the CO adsorbent may be same palladium set forth in claim 9 in WO 97/47864.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to further describe the physical and chemical properties of the palladium set forth in claim 9 in WO 97/47864, in the manner set forth in the scope of Applicants' claims 1 and 5, because the courts have already determined that such description of latent properties inherently present in the prior art (in this case, the palladium set forth in claim 9 in WO 97/47864) is *prima facie* obvious: please see the discussion of the *In re Wiseman* 596 F.2d 1019, 201 USPQ 658 (CCPA 1979) court decision set forth in section 2145(II) in the MPEP (8th ed.).

Response to Arguments

The applicants' arguments submitted in their amendment date-stamped May 23, 2003 (paper no. 9) have been fully considered but they are not persuasive.

a) *The applicants argue that the catalyst of WO 97/47864 does not disclose the presence of Pd, Ir or Ru, as required by the catalyst of the applicants' claims.*

Pg. 19 Ins. 9-19 in WO 97/47864 discloses that their catalyst may contain the Pd of applicants' claims 1 and 5 in an amount ranging from 0.5 to 3 wt %, which is not patentably distinct from the 0.25 to 3 parts by weight reported in applicants' claim 5, or the 0.80 wt %, 0.85 wt % or 3.0 wt % reported in applicants' Table 4 on pg. 30 in the applicants' specification that is associated with the claimed temperature where desorbed CO volume reaches the maximum level at 200 °C, as embraced in the scope of applicants' claims 1 and 5.

b) *The applicants argue that their catalyst exhibits a CO desorption capacity that reaches a maximum level at a temperature in the range of 200 to 220 °C during a heating test. The use of such a catalyst to satisfy this test improves the anti-SO_x property of the catalyst. WO 97/47864 is silent about such a heating test and on these specific properties (i. e. the improved anti-SO_x properties?).*

The applicants' specification was searched for unexpected advantages attributed to the argued heat test regarding the CO desorption capacity at 200 to 220 °C, and found that Table 4 on pg. 30 in the applicants' specification shows that the criticality of the claimed 200 to 220 °C temperature range where the desorbed CO volume reaches the maximum level is a function of the amount of Pd supported on the catalyst, and that the critical amounts of Pd are 0.25 g/100 g of carrier; 0.80 g/100 g of carrier; 0.85 g/100 g of carrier and 3.0 g/100 g of carrier. However, these critical amounts of Pd reported in applicants' table 4 and also in applicants' claim 5 are not distinct from the 0.5 to 15 wt

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percent reported on pg. 19 Ins. 15-16 in WO 97/47864. Note that table 4 on pg. 50 in WO 97/47864 in embodiment catalyst 4 reports that the amount of Pd is 1.5 wt. %, which is not distinct from the claimed amount of .05 to 3 wt % reported in applicants' claim 5.

The Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). The Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Timothy Vanoy/tv
July 17, 2003


Timothy Vanoy
Patent Examiner

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